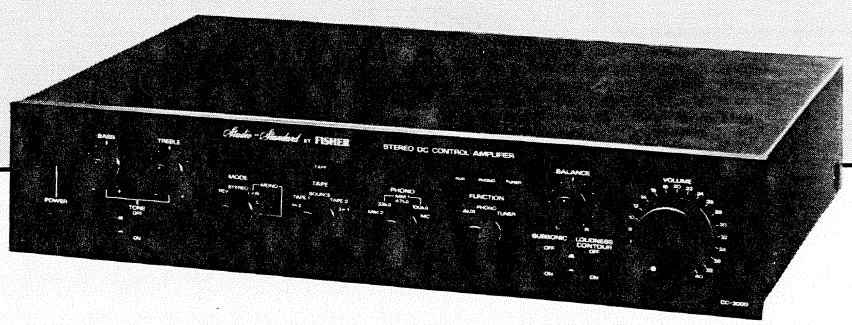
SERVICE MANUAL

FISHER

CC-3000

Control Amplifier

(EUROPE)



The first name in high fidelity

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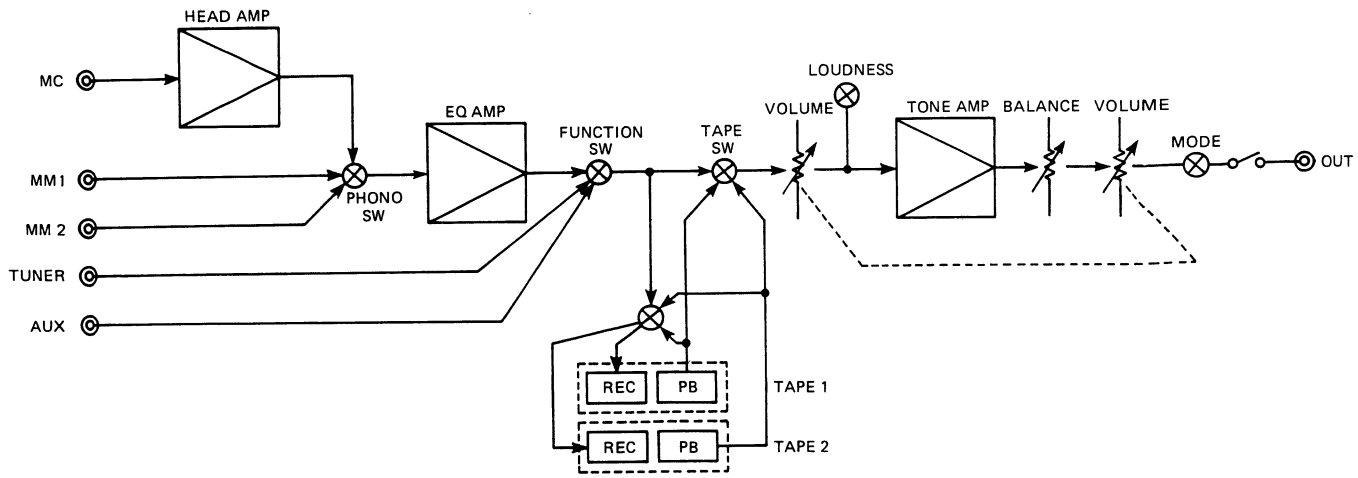
FUNCTIONAL BLOCK DIAGRAM

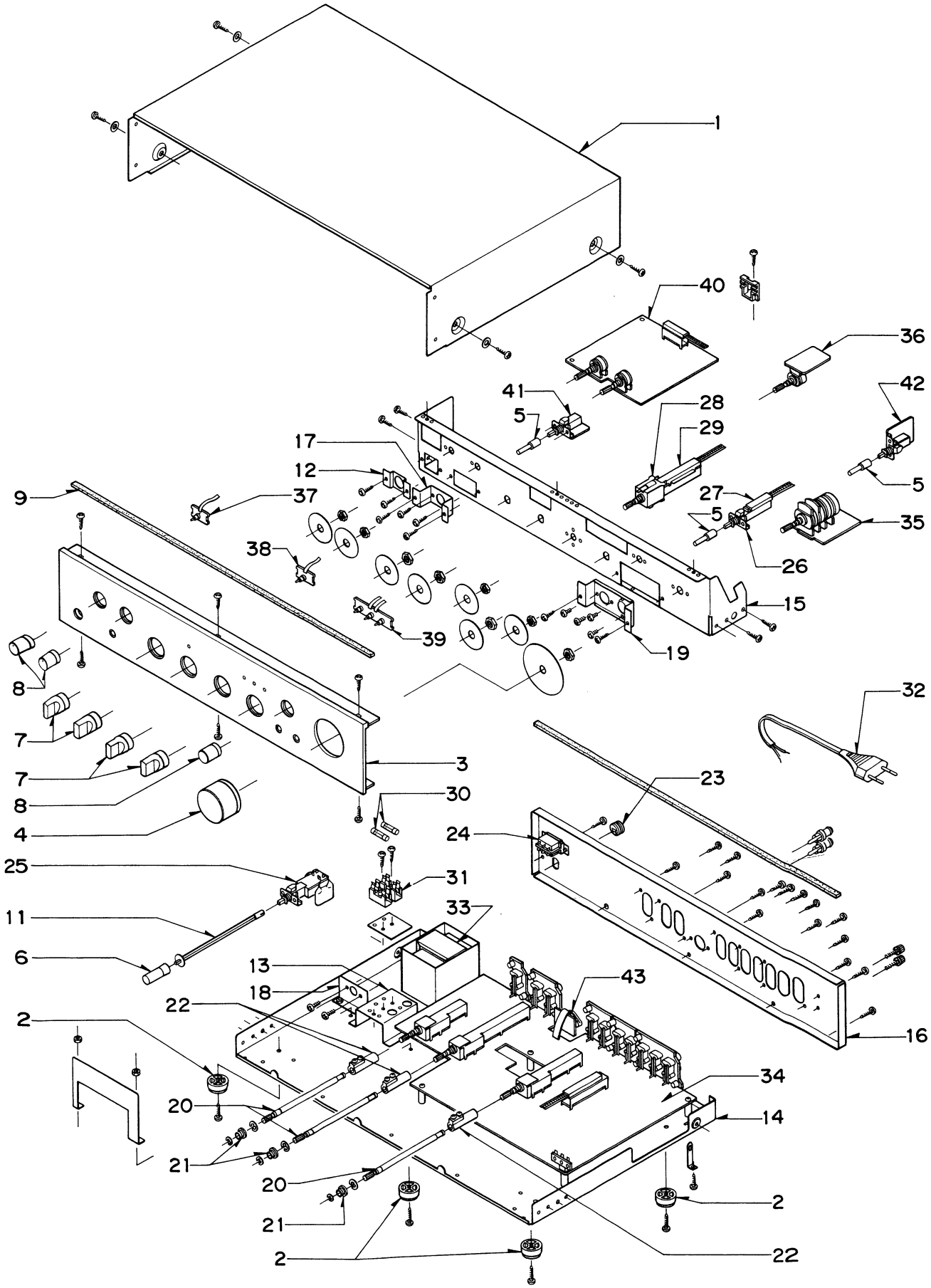


SPECIFICATIONS

CONTROL AMPLIFIER		CC-3000
Output Voltage and Impedance		100 mV/≦5 kohms
Harmonic Distortion at Rated Output (1 V Output)		0.005 %
I.M. Distortion (1 V Output)		0.005 %
Frequency Response	PHONO	RIAA, ±0.2 dB
	AUX	20 Hz - 20 kHz, (+0/–0.5 dB)
Input Sensitivity and Impedance	PHONO MC	70 μV/22 ohms
	PHONO MM-1 (Switchable)	2.5 mV/33, 47, 100 kohms
	PHONO MM-2	2.5 mV/47 kohms
	TUNER	150 mV/100 kohms
	AUX	150 mV/100 kohms
	TAPE 1, 2	150 mV/100 kohms
	TAPE (DIN)	150 mV/100 kohms
Treble Control 10 kHz		±10 dB
Bass Control 100 Hz		±10 dB
Loudness Contour (at –30 dB) 100 Hz/10 kHz		+8 dB/+4 dB
Subsonic Filter (15 Hz)		–3 dB (12 dB/oct.)
Output Voltage	TAPE 1, 2	150 mV
	TAPE (DIN)	4 mV (10 kohms terminate)
Crosstalk	PHONO	60 dB
	AUX	65 dB
S/N Ratio (DIN) (at Rated Output)	PHONO MM	90 dB
	AUX	100 dB
Power Requirements		110/220 V, 50/60 Hz
Power Consumption		13 W
Dimensions (W x H x D)		440 x 89 x 300 mm
Weight (approx.)		5 kg

Because Fisher products are subject to continuous improvement, Fisher reserves the right to modify, change, or alter any design or specifications without notice and without incurring any obligation. Fisher reserves the right to make changes and improvements upon its products without any obligation to install such changes upon any of its products previously manufactured.

CABINET & CHASSIS EXPLODED VIEW



PARTS LIST

PAKING PARTS LIST

Ref. No.	Parts Number	Description
	131 6 1139 72421	Box Corrugate-EXP
	131 6 2119 01441	Bag Polyethylene-EXP
	131 6 3009 26910	Pad (Right, Left)

ACCESSORIES PARTS LIST

Ref. No.	Parts Number	Description
	131 0 4004 11501	W Pin Cord
	131 6 1801 13900	Leg
	131 2 3091 10400	Staple No.10
	131 6 2719 11300	Bag Fan
	131 6 4119 79701	Explanatory Booklet
	131 6 4519 15700	Guarantee Certificate

CABINET PARTS LIST

Ref. No.	Parts Number	Description
1	131 2 1410 21501	Cover
2	131 2 1801 12900	Leg

APPEARANCE PARTS LIST

Ref. No.	Parts Number	Description
3	131 0 1016 34200	Panel Decorate Assy (Silver)
	131 0 1016 34201	Panel Decorate Assy (Black)
4	131 0 1001 48201	Volume Knob (Silver)
	131 0 1001 48206	Volume Knob (Black)
5	131 0 1001 48400	Push Knob (Silver)
	131 0 1001 48403	Push Knob (Black)
6	131 0 1001 52600	Power Knob (Silver)
	131 0 1001 52601	Power Knob (Black)
7	131 0 1001 53700	Function Knob (Silver)
	131 0 1001 53701	Function Knob (Black)
8	131 0 1001 53800	Volume Knob (Silver)
	131 0 1001 53801	Volume Knob (Black)
9	131 2 5205 15300	Cushion

CHASSIS PARTS LIST

Ref. No.		Parts Number	Description
11		131 2 1601 59900	Knob
12		131 2 3101 67700	Metal Mount (Power Switch)
13		131 2 3101 67800	Metal Mount (Fuse)
14	*	131 2 3301 26100	Chassis
15	*	131 2 3305 27300	Panel Front
16	*	131 2 3306 30500	Panel Rear
17		131 2 3701 21900	Mount Electric Part (Push SW)
18		131 2 3701 25100	Mount Electric Part (Power SW)
19		131 2 3701 25200	Mount Electric Part (Push SW)
20		131 2 4103 12200	Metal Shaft (Function SW)
21		131 2 4114 12500	Support Shaft (Metal Shaft)
22		131 2 4121 00300	Cupring (Metal Shaft)
23		131 2 6111 14200	Bushing

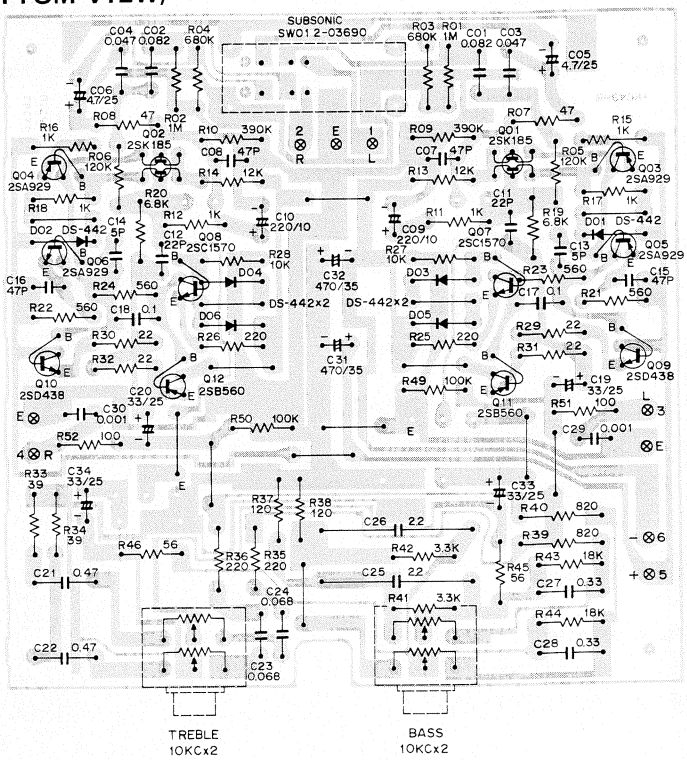
ELECTRICAL PARTS LIST

Ref. No.		Parts Number	Description
24		4 2312 01020	Switch Slide
25		4 2312 02280	Switch Push Power
26		4 2312 03680	Switch Push
27		4 2312 03681	Joint Switch
28		4 2312 03720	Switch Rotary
29		4 2312 03721	Joint Switch
30		4 2349 20310	Fuse 500 mA
31		4 2359 21021	Fuse Holder
32		4 2439 20526	Power Cord
33		4 2512 10420	Power Transformer
34	*	131 0 4001 03751	Pre P.C.B. Assy
35	*	131 0 4001 03761	Volume P.C.B. Assy
36	*	131 0 4001 03770	Balance P.C.B. Assy
37	*	131 0 4001 03780	Power L.E.D. P.C.B. Assy
38	*	131 0 4001 03790	Tape L.E.D. P.C.B. Assy
39	*	131 0 4001 03800	Function L.E.D. P.C.B. Assy
40	*	131 0 4001 03810	Tone P.C.B. Assy
41	*	131 0 4001 03820	Tone Switch P.C.B. Assy
42	*	131 0 4001 03830	Loudness P.C.B. Assy
43	*	131 0 4001 03860	DIN P.C.B. Assy
C01,02		C2EHRM103A	Metallized Paper 0.01 μF 250V ±20%
C03,04		C1HFRK335B	Mylar 3.3 μF 50V ±10%

* —Not a service part.

TONE P.C.BOARD

(BOTTOM VIEW)



TRANSISTOR DC VOLTAGES				
SYMBOL No.	DEVICE	D	G	S
Q01,02	2SK185	22.8V	0V	0.2V
		B	C	E
Q03,04	2SA929	23.5V	24.1V	22.8V
Q05,06	2SA929	22.8V	0.8V	23.4V
Q07,08	2SC1570	−22.7V	−0.8V	−23.3V
Q09,10	2SD438	0.8V	25.1V	0.3V
Q11,12	2SB560	−0.8V	−24.0V	−0.3V

PARTS LIST

TONE P.C.B. Assy
131 0 4001 03810

Ref. No.	Parts Number	Description
S01	4 2312 03690	Switch Slide 2-2
VR01,02	4 2222 01270	VR 10k-Cx2

CAPACITORS

C01,02	C1HFAK823A	Mylar	0.082 μF	50V	±10%
C03,04	C1HFAK473A	Mylar	0.047 μF	50V	±10%
C05,06	C1ERY-475LPA	Electrolytic	4.7 μF	25V	
C07,08	C1HCYK470APA	Ceramic	47 pF	50V	±10%
C09,10	C1ARE-227A	Electrolytic	220 μF	10V	
C11,12	C1HCYK220APA	Ceramic	22 pF	50V	±10%
C13,14	C1HCDC050SL	Ceramic	5 pF	50V	±0.25%
C15,16	C1HCYK470APA	Ceramic	47 pF	50V	±10%
C17,18	C1HFAK104A	Mylar	0.1 μF	50V	±10%
C19,20	C1ERY-336LPA	Electrolytic	33 μF	25V	
C21,22	C1HFAK474A	Mylar	0.47 μF	50V	±10%
C23,24	C1HFAK683A	Mylar	0.068 μF	50V	±10%
C25,26	C1HFRK225B	Mylar	2.2 μF	50V	±10%
C27,28	C1HFRK334A	Mylar	0.33 μF	50V	±10%
C29,30	C1HFYK102APA	Mylar	0.001 μF	50V	±10%
C31,32	C1VRF-477A	Electrolytic	470 μF	35WV	
C33,34	C1ERY-336LPA	Electrolytic	33 μF	25V	

SEMICONDUCTORS

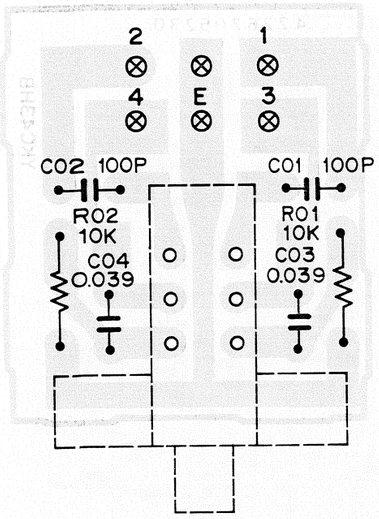
D01,02 03,04,05,06	205 5 9040 44210	Diode, DS-442
Q01,02	TVV-2SK185	FET (Dual) 2SK185
Q03,04 05,06	203 5 7000 92970	TR 2SA929 G, H

Ref. No.	Parts Number	Description
SEMICONDUCTORS		
Q07,08	203 5 5251 57079	TR 2SC1570 GL, HL
Q09,10	203 5 6830 43850	TR 2SD438 E, F
Q11,12	203 5 6840 56050	TR 2SB560 E, F

RESISTORS

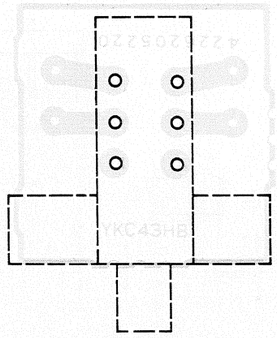
R01,02	R2EDZJ105APA	Carbon	1M	1/4W	±5%
R03,04	R2EDZJ684APA	Carbon	680k	1/4W	±5%
R05,06	R2EDZJ124APA	Carbon	120k	1/4W	±5%
R07,08	R2EDZJ470APA	Carbon	47	1/4W	±5%
R09,10	R2EDZJ394APA	Carbon	390k	1/4W	±5%
R11,12	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R13,14	R2EDZJ123APA	Carbon	12k	1/4W	±5%
R15,16 17,18	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R19,20	R2EDZJ682APA	Carbon	6.8k	1/4W	±5%
R21,22 23,24	R2EDZJ561APA	Carbon	560	1/4W	±5%
R25,26	R2EDZJ221APA	Carbon	220	1/4W	±5%
R27,28	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R29,30 31,32	R2EDZJ220APA	Carbon	22	1/4W	±5%
R33,34	R2EDZJ390APA	Carbon	39	1/4W	±5%
R35,36	R2EDZJ221APA	Carbon	220	1/4W	±5%
R37,38	R2EDZJ121APA	Carbon	120	1/4W	±5%
R39,40	R2HDPJ821A	Carbon	820	1/2W	±5%
R41,42	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R43,44	R2EDZJ183APA	Carbon	18k	1/4W	±5%
R45,46	R2EDZJ560APA	Carbon	56	1/4W	±5%
R49,50	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R51,52	R2EDZJ101APA	Carbon	100	1/4W	±5%

LOUDNESS P.C.BOARD
(BOTTOM VIEW)

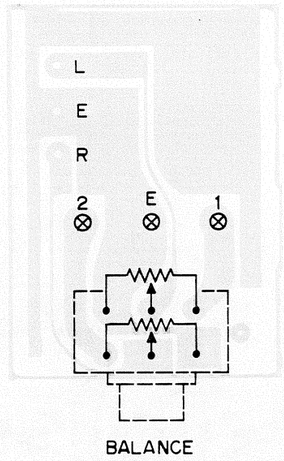


DIN P.C.BOARD
(BOTTOM VIEW)

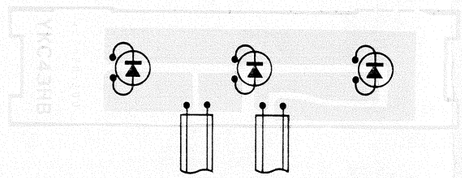
TONE SWITCH P.C.BOARD
(BOTTOM VIEW)



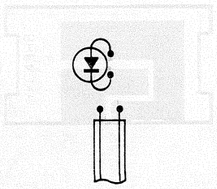
BALANCE P.C.BOARD
(BOTTOM VIEW)



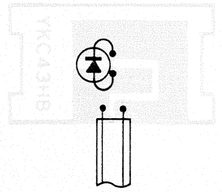
FUNCTION L.E.D. P.C.BOARD
(BOTTOM VIEW)



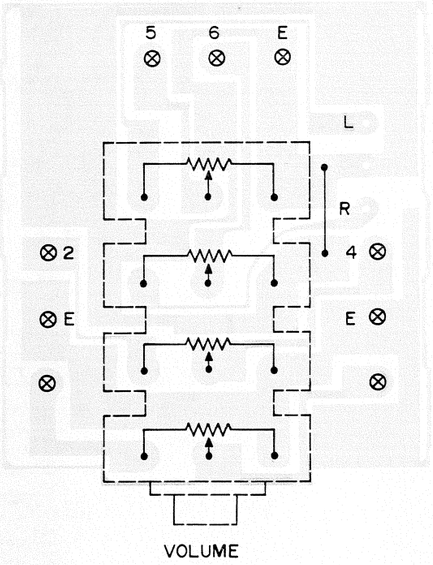
POWER L.E.D. P.C.BOARD
(BOTTOM VIEW)



TAPE L.E.D. P.C.BOARD
(BOTTOM VIEW)



VOLUME P.C.BOARD
(BOTTOM VIEW)



PARTS LIST

LOUDNESS P.C.B. Assy
131 0 4001 03830

Ref. No.	Parts Number	Description
	4 2312 03870	Switch Push 1key
	CAPACITORS	
C01,02	C1HCYK101APA	Ceramic 100 pF 50V ±10%
C03,04	C1HFYK393APA	Mylar 0.039 μF 50V ±10%
	RESISTORS	
R01,02	R2EDZJ103APA	Carbon 10k 1/4W ±5%

DIN P.C.B. Assy
131 0 4001 03860

Ref. No.	Parts Number	Description
	4 2352 00370	DIN 5P

TONE SWITCH P.C.B. Assy
131 0 4001 03820

Ref. No.	Parts Number	Description
	4 2312 03870	Switch Push 1Key

BALANCE P.C.B. Assy
131 0 4001 03770

Ref. No.	Parts Number	Description
	4 2222 01250	VR 100k-MNx2

PARTS LIST

FUNCTION L.E.D. P.C.B. Assy
131 0 4001 03800

Ref. No.	Parts Number	Description
	SEMICONDUCTORS	
	DTT-TLG206	Diode, TLG206 (L.E.D.)

POWER L.E.D. P.C.B. Assy
131 0 4001 03780

Ref. No.	Parts Number	Description
	SEMICONDUCTORS	
	DTT-TLR206	Diode, TLR206 (L.E.D.)

TAPE L.E.D. P.C.B. Assy
131 0 4001 03790

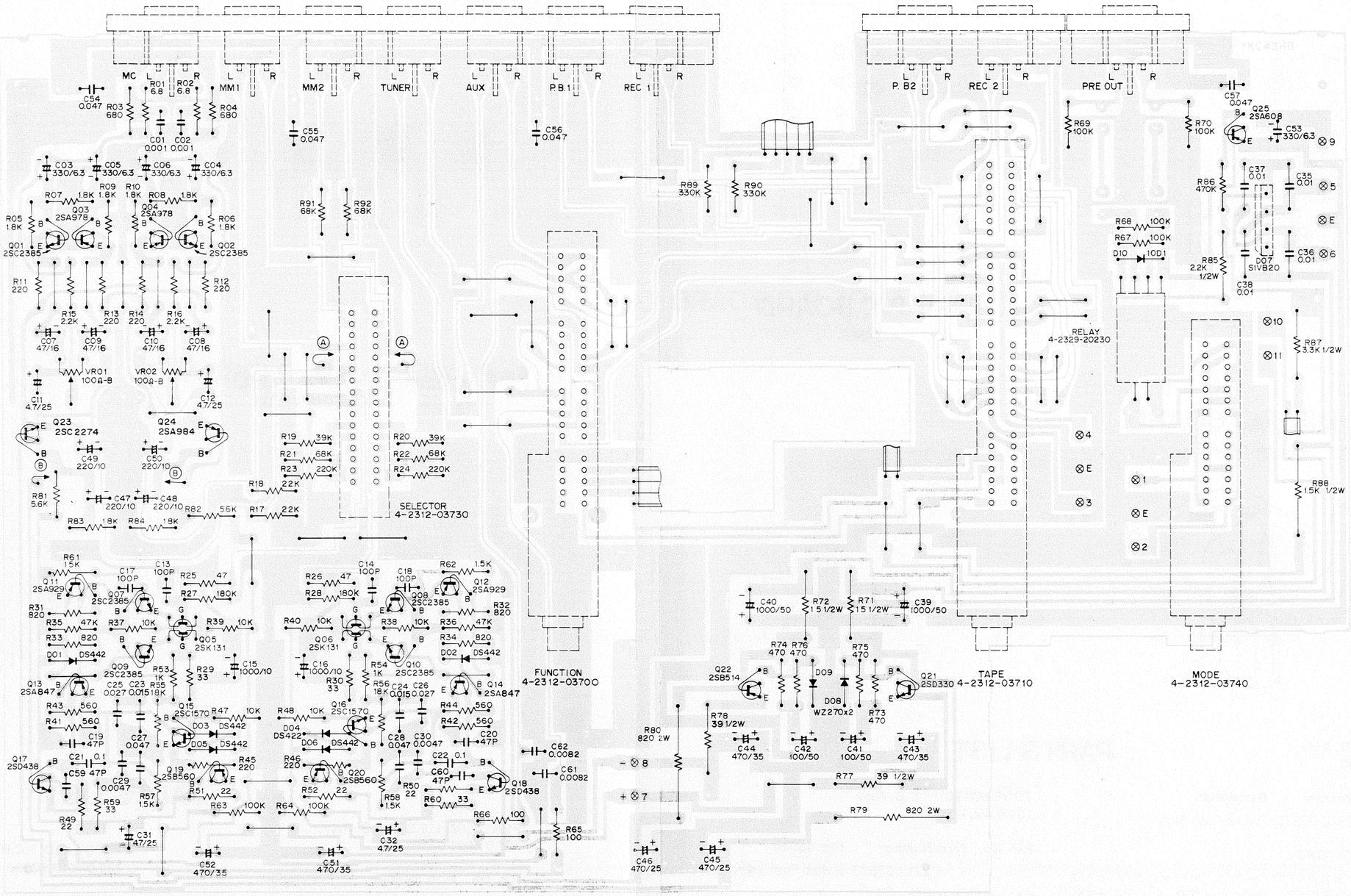
Ref. No.	Parts Number	Description
	SEMICONDUCTORS	
	DTT-TLG206	Diode, TLG206 (L.E.D.)

VOLUME P.C.B. Assy
131 0 4001 03761

Ref. No.	Parts Number	Description
	4 2222 01290	VR 250k-Ax2, 3k-Cx2

PRE PRINTED CIRCUIT BOARD

(BOTTOM VIEW)



PRE P.C.BOARD TRANSISTOR DC VOLTAGES

SYMBOL No.	DEVICE	B	C	E	SYMBOL No.	DEVICE	B	C	E	SYMBOL No.	DEVICE	B	C	E
Q01,02	2SC2385	0.6V	1.9V	0V	Q13,14	2SA847	23.0V	0.8V	23.5V	Q21	2SD330	28.4V	34.1V	27.8V
Q03,04	2SA978	−0.6V	−1.9V	0V	Q15,16	2SC1570	−23.0V	−0.8V	−23.5V	Q22	2SB514	−27.6V	−33.8V	−27.0V
Q07,08	2SC2385	4.6V	23.0V	4.1V	Q17,18	2SD438	0.8V	25.2V	0.2V	Q23	2SC2274	5.8V	9.6V	5.2V
Q09,10	2SC2385	4.6V	23.1V	4.1V	Q19,20	2SB560	−0.8V	−24.0V	−0.2V	Q24	2SA608	−5.6V	−11.0V	−5.0V
Q11,12	2SS929	23.4V	23.0V	24.0V										

FET DC VOLTAGES

SYMBOL No.	DEVICE	D	G	S
Q05,06	2SK131	4.1V	0V	0.3V

PARTS LIST

PRE P.C.B. Assy
131 0 4001 03751

Ref. No.	Parts Number	Description
	4 2312 03700	Switch Rotary 8-3
	4 2312 03710	Switch Rotary 8-5
	4 2312 03730	Switch Slide 4-5
	4 2312 03740	Switch Rotary 4-5
VR01,02	4 2222 01280	VR 100-B
	4 2329 20230	Relay Leed
	4 2359 23170	Socket 2P
	4 2359 23180	Socket 4P
	4 2359 23220	RCA 6P Jack
	CAPACITORS	
C01,02	C1HFYK102APA	Mylar 0.001 μF 50V ±10%
C03,04 05,06	C0JRE-337A	Electrolytic 330 μF 6.3V
C07,08 09,10	C1CRY-476APA	Electrolytic 47 μF 16V
C11,12	C1ETRK475A	Tantalum 4.7 μF 25V ±10%
C13,14	C1HCYK101APA	Ceramic 100 pF 50V ±10%
C15,16	C1ARE-108A	Electrolytic 1000 μF 10V
C17,18	C1HCYK101APA	Ceramic 100 pF 50V ±10%
C19,20	C1HCDK470SL	Ceramic 47 pF 50V ±10%
C21,22	C1HFAK104A	Mylar 0.1 μF 50V ±10%
C23,24	4 2232 00330	Mylar 0.015 μF 50V ±1%
C25,26	4 2232 00340	Mylar 0.027 μF 50V ±1%
C27,28	4 2232 00350	Mylar 0.047 μF 50V ±1%
C29,30	4 2232 00360	Mylar 0.0047 μF 50V ±1%
C31,32	C1ERY-475LPA	Electrolytic 4.7 μF 25V
C35,36 37,38	C2HYSP103A	Ceramic 0.01 μF 500V +100,–0%
C39,40	C1HRE-108A	Electrolytic 1000 μF 50V
C41,42	C1HRE-107A	Electrolytic 100 μF 50V
C43,44	C1VRF-477A	Electrolytic 470 μF 35WV
C45,46	C1ERF-477A	Electrolytic 470 μF 25WV
C47,48 49,50	C1ARE-227A	Electrolytic 220 μF 10V
C51,52	C1VRF-477A	Electrolytic 470 μF 35WV
C53	C0JRE-337A	Electrolytic 330 μF 6.3V
C54,55 56,57	C1HYYZ473APA	Ceramic 0.047 μF 50V +80,–20%
C59,60	C1HCDK470SL	Ceramic 47 pF 50V ±10%
C61,62	C1HFYK822APA	Mylar 0.0082 μF 50V ±10%
	SEMICONDUCTORS	
D01,02 03,04 05,06	205 5 9040 44210	Diode, DS-442
D07	DDD-S1VB20	Diode, S1VB20
D08,09	DJZ-WZ270	Diode, WZ270
D10	DCC-10D1----N	Diode, 10D1
Q01,02	TMM-2SC2385-F	TR 2SC2385 F, G, H
Q03,04	TMM-2SA978-F	TR 2SA978 F, G, H
Q05,06	TNN-2SK131--K	FET 2SK131 K, L
Q07,08 09,10	TMM-2SD2385-F	TR 2SC2385 F, G
Q11,12	203 5 7000 92970	TR 2SA929 G, H
Q13,14	TMM-2SA847--F	TR 2SA847 F, G
Q15,16	203 5 5251 57079	TR 2SC1570 GL, HL
Q17,18	203 5 6830 43850	TR 2SD438 E, F

Ref. No.	Parts Number	Description
	SEMICONDUCTORS	
Q19,20	203 5 6840 56050	TR 2SB560 E, F
Q21	203 5 8570 33050	TR 2SD330 E, F
Q22	203 5 8530 51450	TR 2SB514 E, F
Q23	203 5 7252 27450	TR 2SC2274 E, F
Q25	203 5 7230 60850	TR 2SA608 E, F

RESISTORS

R01,02	R2EDZJ6R8APA	Carbon	6.8	1/4W	±5%
R03,04	R2EDZJ681APA	Carbon	680	1/4W	±5%
R05,06 07,08 09,10	R2EDZJ182APA	Carbon	1.8k	1/4W	±5%
R11,12 13,14	R2EDZJ221APA	Carbon	220	1/4W	±5%
R15,16	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R17,18	R2EDZJ223APA	Carbon	22k	1/4W	±5%
R19,20	R2EDZJ393APA	Carbon	39k	1/4W	±5%
R21,22	R2EDZJ683APA	Carbon	68k	1/4W	±5%
R23,24	R2EDZJ224APA	Carbon	220k	1/4W	±5%
R25,26	R2EDZJ470APA	Carbon	47	1/4W	±5%
R27,28	R2EDZJ184APA	Carbon	180k	1/4W	±5%
R29,30	R2EDZJ330APA	Carbon	33	1/4W	±5%
R31,32 33,34	R2EDZJ821APA	Carbon	820	1/4W	±5%
R35,36	R2EDZJ473APA	Carbon	47k	1/4W	±5%
R37,38	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R39,40	R2EDZJ682APA	Carbon	6.8k	1/4W	±5%
R41,42 43,44	R2EDZJ561APA	Carbon	560	1/4W	±5%
R45,46	R2EDZJ221APA	Carbon	220	1/4W	±5%
R47,48	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R49,50 51,52	R2EDZJ220APA	Carbon	22	1/4W	±5%
R53,54	4 2212 00080	Metal Film	1k	1/4W	±1%
R55,56	4 2212 00100	Metal Film	18k	1/4W	±1%
R57,58	4 2212 00090	Metal Film	1.5k	1/4W	±1%
R59,60	R2EDZJ330APA	Carbon	33	1/4W	±5%
R61,62	R2EDZJ152APA	Carbon	1.5k	1/4W	±5%
R63,64	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R65,66	R2EDZJ101APA	Carbon	100	1/4W	±5%
R67,68 69,70	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R71,72	R2HXBJ150A	Oxide Metal Film	15	1/2W	±5%
R73,74 75,76	R2EDZJ471APA	Carbon	470	1/4W	±5%
R77,78	R2HXBJ390A	Oxide Metal Film	39	1/2W	±5%
R79,80	R2WXBJ820A	Oxide Metal Film	820	2W	±5%
R81,82	R2EDZJ562APA	Carbon	5.6k	1/4W	±5%
R83,84	R2EDZJ182APA	Carbon	1.8k	1/4W	±5%
R85	R2HXBJ222A	Oxide Metal Film	2.2k	1/2W	±5%
R86	R2EDZJ474APA	Carbon	470k	1/4W	±5%
R87	R2HXBJ332A	Oxide Metal Film	3.3k	1/2W	±5%
R88	R3AXBJ152A	Oxide Metal Film	1.5k	1/2W	±5%
R89,90	R2EDZJ334APA	Carbon	330k	1/4W	±5%
R91,92	R2EDZJ683APA	Carbon	68k	1/4W	±5%

ADJUSTMENT OF THE PRE P.C.BOARD

BEFORE ADJUSTMENT

After the power switch is turned ON, allow a few minutes before making adjustment, to be sure of the most stable operation.

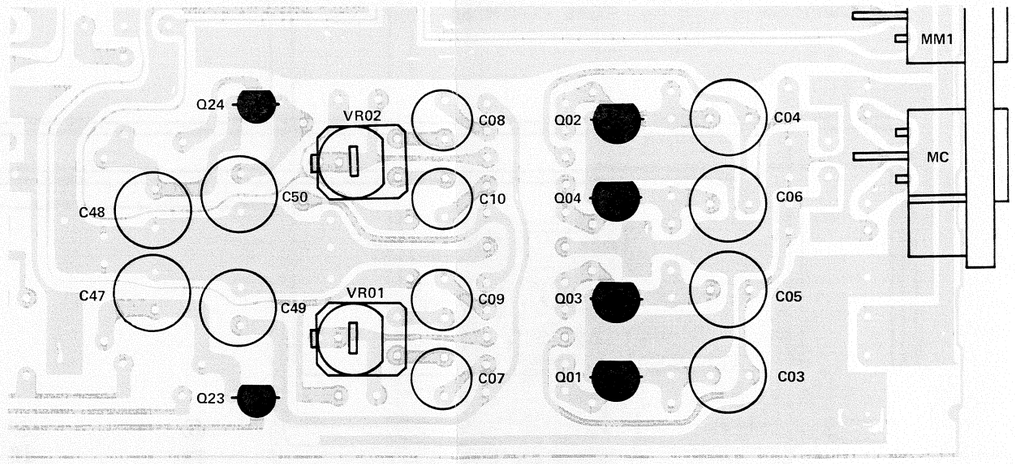
- Use an Oscilloscope (Flat to 100 kHz Minimum).
- Use a Low-Distortion Audio Signal-Wave Generator and Harmonic Distortion Analyzer.
- FUNCTION Switch to MC

HARMONIC DISTORTION ADJUSTMENT

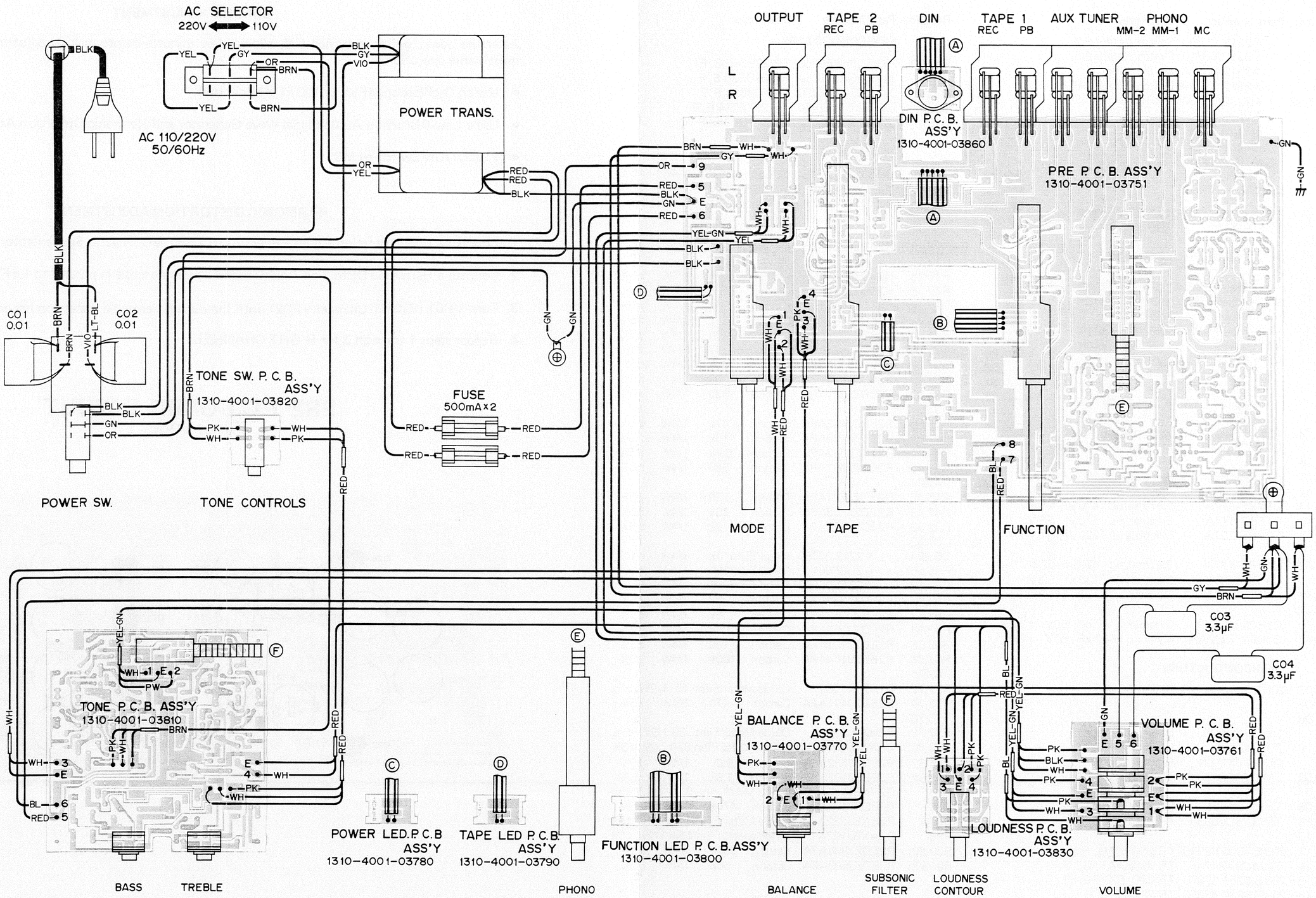
1. Connect a Low-Distortion Audio Generator to LEFT MC IN Jack. Set generator frequency to 20 kHz.
2. Connect a Harmonic Distortion Analyzer and an Oscilloscope in parallel to LEFT REC 1 or 2.
3. Turn VR01 (RIGHT Channel VR02) until the output harmonic distortion becomes minimum.
4. Repeat steps 1 through 3 for RIGHT CHANNEL.

PRE P.C.BOARD LAYOUT

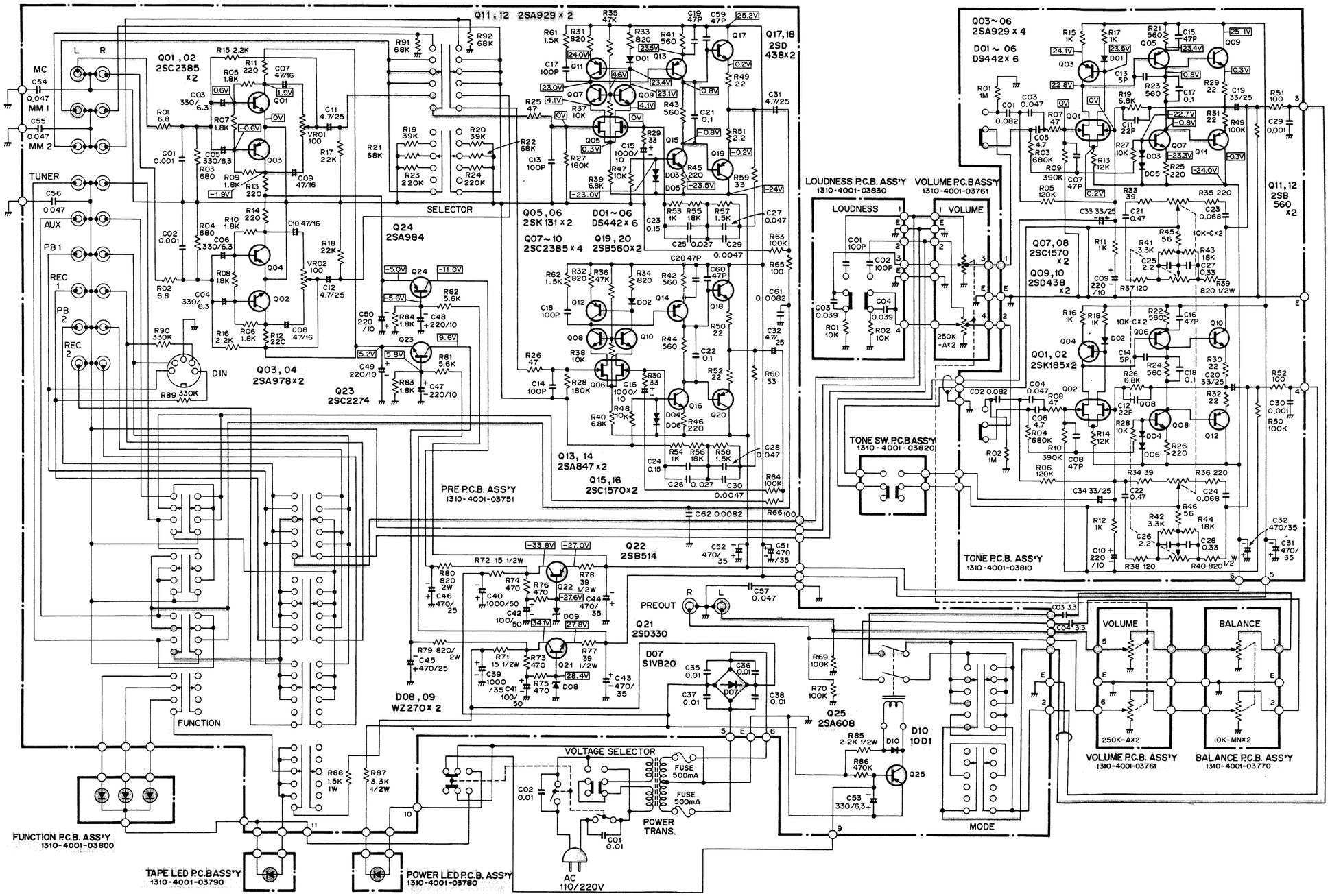
(TOP VIEW)



POINT TO POINT WIRING DIAGRAM



SCHEMATIC DIAGRAM

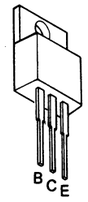


NOTES:

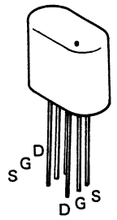
1. All resistors values are indicated in "ohm" (K=10^3, M=10^6).
2. All capacitors values are indicated in "μF" (P=10^{-12}).
3. All volatages indicated on the schematics are measured under the following conditions.
   a. Use a V.T.V.M.
   b. All voltages ±10% with respect chassis ground
   c. No signals at input terminals
   d. AC input at 220 volts 50 Hz
4. This is a fundamental schematics diagram. Some products may be modified without notice.

SEMICONDUCTOR LEAD IDENTIFICATION

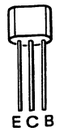
TRANSISTORS



- 2SD330
- 2SB514

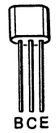


- 2SK185
- 2SK131



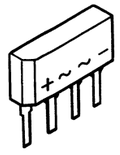
- 2SA929
- 2SA608
- 2SC1570
- 2SC2274

- 2SD438
- 2SB560

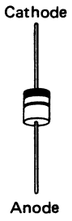


- 2SA847
- 2SA978
- 2SC2385

DIODES



- S1VB20



- 10D1

- DS-442
- WZ270

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PRINTED IN JAPAN

'79/Sep. **WM-4353**